REMARKS

An excess claim fee payment letter is submitted herewith for one (1) additional independent claim and four (4) additional total claims.

Claims 1-24 are all the claims presently pending in the application. The Abstract and claims 1-12 are amended to more clearly define the invention and claims 13-24 are added. Claims 1, 4-5, 8-9, 12, and 19 are independent.

These amendments are made only to more particularly point out the invention for the Examiner and not for narrowing the scope of the claims or for any reason related to a statutory requirement for patentability.

Applicants also note that, notwithstanding any claim amendments herein or later during prosecution, Applicants' intent is to encompass equivalents of all claim elements.

Applicants thank Examiner Tran for the courtesies extended to the Applicants' representative during a telephone conference on December 14, 2004. During the telephone conference, Examiner Tran confirmed that the citation of the "Shinjo" reference on pages 3 and 4 were typographical errors. Examiner Tran indicated that the Office Action should refer to the Ohsawa reference rather than the Shinjo reference.

Further, with respect to paragraph seven (7) of the Office Action, Examiner Tran indicated that the citations to the Ohsawa reference is a typographical error and that Examiner Tran intended to cite the Furuichi et al. reference and not the Ohsawa reference.

Claims 1, 4-5, 8-9, and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by Ohsawa reference. Claims 1, 4-5, 8-9, and 12 stand rejected under 35 U.S.C. § 102(b) as being anticipated by the Furuichi et al. reference. Claims 2-3, 6-7, and 10-11 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over the Ohsawa reference.

These rejections are respectfully traversed in the following discussion.

I.   THE CLAIMED INVENTION

An exemplary embodiment of the claimed invention, as defined by, for example, independent claim 1, is directed to a power-saving task processing system that includes a remaining power detector for detecting a remaining power of a battery. The remaining power detector outputs a detection result about a value or state of the remaining power of the battery. The system further includes a motion information-storage for storing a motion information table. The motion information table defines a relationship between values or states of the remaining power of the battery on execution of a task and a plurality of processes for each task. Each of the plurality of processes corresponds to a different value or state of the remaining power of the battery and for which complete execution is ensured at the respective values or states of the remaining power of the battery. The system further includes a task controller for controlling execution of tasks to be executed. When the task controller executes a task, the task controller chooses and executes one of the plurality of processes from the motion information table according to the detection result of the remaining power detector.

Conventional battery powered robots are required to complete an assigned (instructed) task. However, these conventional robots may not be able to complete an assigned task because the remaining amount of battery power is insufficient to complete the assigned task.

If one of these conventional battery powered robots is unable to complete an assigned task, a serious malfunction may be caused. For example, incomplete execution of a task may lead to a halt of a manufacturing line and/or generation of defective products.

To address this problem, some conventional battery powered robots determine the amount of remaining battery power and then determine whether sufficient battery power remains for an instructed task. If there is insufficient battery power, these conventional robots do not execute the instructed task.

Further, these conventional battery powered robots may suddenly stop executing a series of tasks if there is not enough battery power to complete any one of the tasks. Thus, the remaining battery power is not efficiently used.

In stark contrast to these conventional systems, the present invention provides a power-saving task processing system that provides a motion information table having a plurality of processes for each task, where each of the plurality of processes corresponds to a different amount of remaining battery power. In this manner, a task controller may select from a plurality of processes for an assigned task based upon the amount of remaining battery power and, therefore, avoid sudden stops of execution of tasks, allow a user to feel continuous operation of a battery-powered apparatus (e.g., a robot) without inducing a feeling of wrongness in the user, extend the actual useable or available period that the battery-powered apparatus is available for completing tasks between charging, and reduce the amount of power that is consumed for a given number of executed tasks. (Page 6, line 22 - page 7, line 20).

II. THE PRIOR ART REJECTIONS

A. The Ohsawa reference

Regarding the rejection of claims 1, 4-5, 8-9, and 12, the Examiner alleges that the Ohsawa reference teaches the claimed invention and regarding the rejection of claims 2-3, 6-

7, and 10-11, the Examiner alleges that it would have been obvious to modify the teachings of

the Ohsawa reference to provide the claimed invention.

Applicants submit, however, that there are elements of the claimed invention which

are neither taught nor suggested by the Ohsawa reference.

None of the applied references teaches or suggests the features of the claimed

invention including a power-saving task processing system that provides a motion

information table having a plurality of processes for each task, where each of the plurality of

processes corresponds to a different amount of remaining battery power. As explained above,

this feature is important for avoiding sudden stops of execution of tasks, allowing a user to

feel continuous operation of a battery-powered apparatus (e.g., a robot) thereby avoiding a

feeling of wrongness in the user, extending the amount of time that the battery-powered

apparatus is available for completing tasks between charging, and reducing the amount of

power that is consumed for a given number of executed tasks.

Rather, and in stark contrast, the Ohsawa reference discloses a camera system that can

select an inhibition discrimination level based upon the remaining capacity of a battery. This

inhibition discrimination level prevents the number of actuators that are operating at any

given time from exceeding the remaining capacity of the battery (col. 1, lines 54-63).

In particular, the Ohsawa reference disclose flowcharts in Figures 11, 13A and 13B

that rely upon a table illustrated in Figure 12. The flowchart of Figure 11 illustrates the

operation of a main microprocessor onboard the camera main body and Figures 13A and 13B

illustrate the operation of a lens microprocessor onboard a lens attached to the camera main

body. (Col. 15, lines 8-10 and col. 17, lines 46-48). The microprocessor onboard the main

body communicates the battery level BL that is stored in the table illustrated in Figure 12 to

the lens microprocessor at step 206. (Col. 16, lines 1-5). The lens microprocessor receives

the BL level in step 306 of Figure 13A (col. 18, lines 13-18).

"The microcomputer LPRS sets the number of motors (motor number), which can be

simultaneously driven upon driving of the motors in the lens, in its internal memory on the

basis of the BL level information acquired in step 306." (Emphasis added, col. 18, lines 19-

22). In other words, the Ohsawa reference discloses determining how many motors may be

simultaneously driven based upon the remaining battery capacity.

Then, as clearly illustrated in the flowchart of Figures 13A and 13B, the Ohsawa

reference discloses determining whether a task may be executed based upon whether

executing the task would cause the number of motors simultaneously operating to exceed the

number determined in step 307. (Col. 18, lines 52 - 59, col. 19, lines 18-22 and lines 47-51,

col. 20, lines 60-65).

Thus, the Ohsawa reference discloses that "by switching the number of motors to be

simultaneously driven in the lens LNS on the basis of the BL level information transmitted

from the camera microcomputer PRS to the lens microcomputer LPRS, actuators in the lens

are controlled to attain a required electrical power level suitable for the remaining capacity

level of the battery." (Emphasis added, col. 22, lines 7-15).

Further, the Ohsawa reference discloses controlling the speed of the motors so that the

remaining battery capacity is not exceeded (col. 22, lines 15-17, et. seq.). Figures 17 and 18

illustrate tables that determine a motor speed in accordance with a battery level.

In summary, the Ohsawa reference discloses a system that determines the remaining

capacity of a battery and determining whether a task may be executed at all based upon that

remaining capacity (step 205 in Figure 11) and, if the task may be completed, the system

ensures that the task is completed either by ensuring that the number of motors

simultaneously operating is below a predetermined number and/or by controlling the

operating speed of the motors. In any case, the Ohsawa reference ensures that as long as

sufficient battery life remains (in step 205) that the task is completed.

The Ohsawa reference <u>does not</u> teach or suggest storing a motion information table

having <u>a plurality of processes for each task, where each of the plurality of processes</u>

<u>corresponds to a different amount of remaining battery power</u>.

Indeed, the Ohsawa reference does not teach or suggest <u>storing a table having a</u>

<u>plurality of processes at all</u>, let alone a plurality of processes <u>for a task</u>, or a plurality of

process <u>that each correspond to a different amount of remaining battery power</u>.

Rather, the Ohsawa reference discloses a table that stores <u>an available number of</u>

<u>motors that may be simultaneously driven</u> (Figure 12) and the <u>operating speeds</u> of motors

(Figures 17 and 18) in correspondence with a battery level.

Further, the Ohsawa reference clearly explains that while the number of motors and

speeds of those motors may differ, that <u>the content (i.e. process) of each task does not change</u>.

The Ohsawa reference clearly explains that if the tasks of performing a zoom, a focus, an iris

drive, etc. are commanded, while the order and/or speed of executing those tasks may differ,

<u>all of those individual tasks are performed to completion</u>. In other words, <u>the process for</u>

<u>completing those tasks do not differ</u>. Thus, the Ohsawa reference <u>does not</u> teach or suggest <u>a</u>

<u>plurality of processes for each task</u>, let alone <u>storing</u> a plurality of processes for each task, or a

plurality of process <u>that each correspond to a different amount of remaining battery power</u>.

With respect to the rejection of claims 2-3, 6-7, and 10-11, the Examiner admits that

the Ohsawa reference <u>does not</u> teach a table with <u>repetition frequency</u> of a process.

The Examiner then alleges that the Ohsawa reference discloses that "numerous types of information can be stored in the table wherein each type of information indicating the required battery level and the associated functions . . . As such, it would have been obvious to one of ordinary skill in the art that the generic types of information stored in Ohsawa's table encompasses all different types of information including the claimed frequency of repetition because the nature of the information does not affect the operation of the table."

Applicants respectfully submit that the Examiner has failed to present a *prima facie* case of obviousness.

The Manual of Patent Examining Procedure states:

"To establish a prima facie case of obviousness, three basic criteria must be met. First, there must be some suggestion, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations." (M.P.E.P. § 2143).

In this instance, not only has the Examiner <u>failed</u> to provide <u>any suggestion or motivation</u> to modify the reference, but the Examiner has <u>also failed</u> to provide a reference that <u>teaches or suggests all the claim limitations</u>.

The Examiner alleges that "it would have been obvious" to modify one of the tables that are disclosed by the Ohsawa reference to include a repetition frequency of a process because such a modification "does not affect the operation of the table."

Even assuming arguendo that the Examiner's alleged modification would not "affect

the operation of the table," the Examiner's allegation <u>does not</u> provide a <u>suggestion or motivation</u> to make such a modification.

"FACT THAT REFERENCES CAN BE COMBINED OR MODIFIED IS NOT SUFFICIENT TO ESTABLISH PRIMA FACIE OBVIOUSNESS

"The mere fact that references <u>can</u> be combined or modified does not render the resultant combination obvious unless the prior art also suggest the desirability of the combination." (M.P.E.P. § 2143.01).

The Examiner's allegation that such a modification would not "affect the operation of the table" merely alleges that such a modification <u>is possible</u> and does not suggest the <u>desirability of making such a modification.</u>

Further, <u>the Examiner admits</u> that the Ohsawa reference <u>does not</u> teach or suggest the features of a table with <u>repetition frequency</u> of a process. Thus, by the Examiner's own admission, the Examiner has <u>failed</u> to provide a *prima facie* case of obviousness.

The Manual of Patent Examining Procedure makes it very clear:

"ALL CLAIM LIMITATIONS MUST BE TAUGHT OR SUGGESTED.

To establish prima facie obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art." (M.P.E.P. § 2143.03)

Since the Ohsawa reference clearly <u>does not</u> teach or suggest the features of the claimed invention as explained above, and as admitted by the Examiner, the Examiner has clearly failed to present a *prima facie* case for obviousness of the claimed invention.

Therefore, the Examiner is respectfully requested to withdraw the rejection of claims

1, 4-5, 8-9, and 12, and the rejection of claims 2-3, 6-7, and 10-11.

B.   The Furuichi et al. reference

Regarding the rejection of claims 1, 4-5, 8-9, and 12, the Examiner alleges that the

Furuichi et al. reference reference teaches the claimed invention. Applicants submit,

however, that there are elements of the claimed invention which are neither taught nor

suggested by the Furuichi et al. reference.

The Furuichi et al. reference <u>does not</u> teach or suggest the features of the claimed

invention including: 1) a motion information table that defines relationships between the

remaining power of the battery and <u>a plurality of processes for each task</u>; and 2) a task

controller <u>that chooses one of the plurality of processes</u> from the motion information table

according to the remaining power detector. As explained above, these features are important

for avoiding sudden stops of execution of tasks, allowing a user to feel continuous operation

of a battery-powered apparatus (e.g., a robot) thereby avoiding a feeling of wrongness in the

user, extending the amount of time that the battery-powered apparatus is available for

completing tasks between charging, and reducing the amount of power that is consumed for a

given number of executed tasks.

Rather, and in stark contrast, the Furuichi et al. reference discloses a resource manager

10 that monitors the usage status of devices 32 to 40, monitors the condition of application

programs 42 to 46, monitors the remaining battery power and sets parameters of the devices

32 to 40. The resource manager 10 communicates the usage data, application program

running states, and the remaining battery power to a policy manager 20 which selects a job

type based upon that data. The policy manager 20 then outputs the job type to the resource manager 10 which sets parameters in the devices based upon the job type. (Col. 3, line 39 - col. 4, line 19 and Figures 1 and 2).

The parameters that are set in the devices correspond to operating modes relating to power saving functions, if available. (Col. 5, lines 40-62). For example, the clock speed of the CPU may be reduced, the luminance of a display may be reduced and the rotation of a hard disk may be reduced and/or stopped based upon these operating modes. (Col. 6, line 51 - col. 7, line 19).

In other words, rather than varying the processes that are executed, the Furuichi et al. reference merely discloses varying the readiness and/or power consumption conditions of the various devices. The Furuichi et al. reference does not teach or suggest varying the processes based upon these operating modes. Indeed, all of the processes that are instructed by the application are executed and only the power/readiness of various devices are affected.

The Furuichi et al. reference does appear to disclose the possibility that an application program "can change its processing in accordance with the power supply state." (Col. 7, lines 20-58). However, the Furuichi et al. reference does not disclose how an application might obtain that object.

Clearly, the Furuichi et al. reference does not teach or suggest that the application program relies upon : 1) a motion information table that defines relationships between the remaining power of the battery and a plurality of processes for each task; and 2) a task controller that chooses one of the plurality of processes from the motion information table according to the remaining power detector.

Indeed, the Furuichi et al. reference does not teach or suggest any table at all within

the application program.

The Examiner cites col. 11, lines 19-29 in an attempt to support the Examiner's allegation that the Furuichi et al. reference discloses a task controller that chooses one of the processes based upon the remaining battery power. In particular, the Examiner alleges that the Furuichi et al. reference discloses that the "resource manager determines whether or not the remaining battery power is sufficient for a specified operating duration. If it is not, the resource manager changes to a new job type."

However, contrary to the Examiner's allegation the resource manager that is disclosed by the Furuichi et al. reference does not change to a new job type if there is insufficient remaining battery power. Rather, the Furuichi et al. reference discloses generating an alarm message.

"The resource manager 10 examines the remaining battery power, and determines whether or not the currently remaining battery power is sufficient for a specified operating duration (step 250). If the specified operating duration is too long, an alarm is generated (step 340), and though not shown in FIG. 4, program (sic) may return to step 230." (Emphasis added, col. 11, lines 19-26).

Therefore, rather than supporting the Examiner's allegation that the Furuichi et al. reference discloses changing to a new job type if there is insufficient battery power, the Furuichi et al. reference discloses generating an alarm message.

Clearly, the Furuichi et al. reference does not teach or suggest 1) a motion information table that defines relationships between the remaining power of the battery and a plurality of processes for each task; and 2) a task controller that chooses one of the plurality of processes from the motion information table according to the remaining power detector.

Therefore, the Furuichi et al. reference <u>does not</u> teach or suggest each and every element of the claimed invention and the Examiner is respectfully requested to withdraw this rejection of claims 1, 4-5, 8-9, and 12.

III. FORMAL MATTERS AND CONCLUSION

The Office Action objects to the Abstract. In particular, the Office Action objects to the Abstract for exceeding 150 words. This Amendment amends the Abstract to reduce the number of words below 150 words.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 1-24 all the claims presently pending in the Application, are patentably distinct over the prior art of record and are in condition for allowance. The Examiner is respectfully requested to pass the above application to issue at the earliest possible time.

Should the Examiner find the Application to be other than in condition for allowance, the Examiner is requested to contact the undersigned at the local telephone number listed below to discuss any other changes deemed necessary in a <u>telephonic or personal interview.</u>
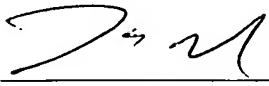
The Commissioner is hereby authorized to charge any deficiency in fees or to credit any overpayment in fees to Attorney's Deposit Account No. 50-0481.

Respectfully Submitted,

Date: _2/18/05_

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